

### 3. Fiorella

**Program Name:** Fiorella.java

**Input File:** fiorella.dat

Your friend Fiorella has Algebra 2 homework due next period, and she forgot all about it! You need to write a program to do the homework before the homework is due.

Use the following formula, given  $w$ ,  $x$ ,  $y$ ,  $z$ , and  $G$ , solve for  $n$ :

$$wx^ny + z = G$$

**Input:** The first line will contain a single integer  $b$  ( $0 < b < 50$ ) that indicates the number of data sets that follow. Each data set will consist of 5 integers,  $w$ ,  $x$ ,  $y$ ,  $z$ , and  $G$ , ( $0 < w, x, y, z, G < 2^{31}$ ) all separated by spaces.

**Output:** Output the value of  $n$  given by solving the equation for  $n$  given all the other values. This value should be formatted as an integer, and printed as shown in the sample output. There will never be a set of numbers for which there is no valid  $n$ .

**Sample input:**

```
4
2 2 2 2 8
2 2 2 2 514
3 2 3 16 52
6 7 8 10 2362
```

**Sample output:**

```
0
7
2
2
```